

REMARKS

Applicants appreciate the helpful guidance provided by the Examiner in the August 9, 2007 personal interview.

Claims 1-8 and 11-20 are presented for further examination. Applicants have amended claims 1 and 11-16. Claims 11-16 have been amended to clarify the claimed subject matter. No new matter has been added.

The August 9, 2007 Personal Interview

In accordance with MPEP § 713.04, Applicants provide a statement of the substance of the interview held by the Examiner, the Applicant and Applicants' representatives. At the August 9, 2007 personal interview, the following parties were present:

- Examiner Muromoto;
- Applicants' representatives Mr. Roberto Devoto and Mr. Michael Zoppo;
- Named inventor Mr. Yoshihiro Matsui; and
- Representatives of Toyobo Co., Ltd., Mr. Katsumi Baba and Mr. Godo Sakamoto (translator).

First, the Examiner and the Applicants' representatives discussed the rejection of the pending claims under 35 U.S.C. §§ 102. Applicants' representatives pointed out distinctions between the claimed subject matter and the cited reference, particularly U.S. Patent No. 5,693,392 (Bergen et al.). The Examiner recognized that the Bergen et al. patent does not anticipate any of the claimed subject matter, and agreed to withdraw the rejection under 35 U.S.C. § 102.

With respect to the rejections under 35 U.S.C. § 103 in view of the Bergen et al. patent, the Examiner took the position that (1) claim 1 is a product-by-process claim and that the Bergen et al. patent discloses a "similar" product, (2) the tear strength and air permeability recited in claim 1 are "measured variables," and therefore are not "structural limitations" that limit the claim, and (3) even if the "measured variables" were structural limitations, they would be obvious because one of ordinary skill in the art could arrive at them by "routine

experimentation.” The Applicants’ representatives vigorously disagreed with these positions, noting that (1) claim 1 is not a product-by-process claim because it does not recite a process for making the claimed product, (2) the Examiner has cited no authority to justify ignoring limitations set forth clearly in the claims and (3) the Examiner has misapplied the law regarding “routine experimentation” and has improperly placed the burden of proving non-obviousness on the Applicant without first having made a *prima facie* showing. The Examiner indicated that if he maintains his “routine experimentation” rationale in light of this response, he will set forth detailed reasoning in a subsequent Office action.

To advance prosecution, and without conceding any of the Examiner’s positions, Applicants’ representatives offered an amendment that further distinguished claim 1 from the Bergen et al. patent. The proposed claim amendment recited that “the yarn linear density is 30 dtex or less,” whereas the Bergen et al. patent discloses yarn densities of 350 dtex to 470 dtex. (*See, e.g.*, Bergen et al. patent, col. 2:26; 2:48; 2:65) The Examiner indicated that this amendment will likely overcome the rejections under 35 U.S.C. § 103, but would be interested in first reading a written response that includes a discussion of any applicable secondary considerations of non-obviousness. Applicants representatives submitted that such a discussion should be unnecessary. Indeed, the Examiner’s interview summary reads that “Examiner agrees that proposed amendment to yarn linear density would overcome presently held rejections.”

Applicants’ representatives also allowed the Examiner to review samples of a fabric that falls within the scope of original claim 1, as well as a fabric of the type disclosed in the Bergen et al. reference.

Last, Applicants’ representatives addressed the drawing objections under 37 C.F.R. § 1.84(p)(5). Applicants’ representatives pointed out that the cited section of the CFR states in its entirety that:

Reference characters not mentioned in the description shall not appear in the drawings. Reference characters mentioned in the description must appear in the drawings.

Accordingly, there is no requirement that the drawings contain reference signs. Since there are no reference signs in both the drawings and the specification, the Applicants' representatives submitted that the instant application conforms with 37 CFR 1.84(p)(5). The Examiner agreed, noting in the interview summary that "drawing objections are overcome."

Objections to the Drawings

As discussed above, the Examiner withdrew this objection in light of the requirements of 37 CFR 1.84(p)(5).

Claim Rejections

The Office action rejected claims 1-20 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as obvious over U.S. Patent No. 5,693,392 (Bergen et al.). Applicants respectfully traverse the rejections.

Rejections under 35 U.S.C. § 102(b)

As the Examiner agreed during the interview, the Bergen et al. reference does not disclose each and every feature of claim 1. For example, the claimed weight (50 g/m² or less) is not disclosed by the Bergen et al. patent, which discloses weights between 215 and 245 g/m². (See, e.g., Bergen et al. patent, col. 2:26; 2:48; 2:65) Moreover, as amended, claim 1 recites that the yarn linear density is 30 dtex or less, whereas the Bergen et al. patent discloses yarn densities of 350 dtex and 470 dtex. (See, e.g., Bergen et al. patent, col. 2:26; 2:48; 2:65) For at least these reasons, Applicants respectfully request that the rejection of all claims under 35 U.S.C. § 102(b) be withdrawn, as agreed during the interview.

Rejections under 35 U.S.C. § 103

The Examiner indicated during the interview that the Applicants' amendments to claim 1 are likely sufficient to overcome the rejections under 35 U.S.C. § 103. However, the Examiner also stated that he would be interested in reading a discussion of secondary considerations in the

written response. Applicants disagree that any discussion of secondary considerations is necessary, and believe the claims are patentable as they stand absent any secondary considerations. Nonetheless, for the sole purpose of advancing prosecution, Applicants will provide a discussion of secondary considerations. But first, Applicants will address the errors in the pending rejections.

Claim 1 Is Not a Product-By-Process Claim

During the interview, the Examiner argued—for the first time—that claim 1 is a product-by-process claim, and therefore, a lesser burden of proof is on the Office to make a *prima facie* case of obviousness. Applicants note that while the Office action states that claims 17-20 are product-by-process claims, it does not make such an argument with respect to claim 1. (Office action, p. 3) Applicants respectfully submit that the position taken by the Examiner during the interview is misplaced.

A product-by-process claim must recite process steps for *making* the claimed product. *See* MPEP § 2113. Applicants have studied claim 1, and cannot identify any steps for making the claimed fabric. Claim 1 clearly recites the *properties* of a fabric—not any particular process for making it. Accordingly, claim 1 is not a product-by-process claim, and the Office must carry the full burden of making a *prima facie* case of obviousness. Applicants respectfully submit that the Office action has not.

The Office Action Improperly Ignores Limitations in the Claims

A premise of the Office action's rejections is that the “only structural limitations in claims 1-20 are to a polyamide fabric, having a ripstop weave, not having a resin finish, and a warp to weft density ratio of .9 to 1.2. . . the measured variables recited by the claims 1-16 do not limit the structure of the fabric but rather the resultant measured variables of the fabric.” (Office action at p. 3)

Applicants respectfully submit that the rejections, which disregard numerous limitations in the claims, are improper. “It is elementary patent law that *all limitations are material*.”

Glaxo, Inc. v. Novopharm, Ltd., 110 F.3d 1562, 1566 (Fed. Cir. 1997); *see also* MPEP § 2144.08 (“When evaluating the scope of a claim, every limitation in the claim must be considered.”); *TechSearch LLC v. Intel Corp.*, 286 F.3d 1360, 1375 (Fed. Cir. 2002) (“specific claim limitations cannot be ignored as insignificant or immaterial in determining infringement”).

As to the Office action's assertion that the “measured variables . . . do not limit the structure of the fabric,” Applicants respectfully disagree. Applicants note that the Office action cites no support for this proposition, and nor could the Examiner identify any during the interview. In fact, Applicants disagree with the premise that a limitation must be “structural” to be a limitation at all. *See, e.g.*, MPEP § 2173.05(g) (“A functional limitation must be evaluated and considered, just like any other limitation of the claim”). Regardless, the “measured variables” relate *directly* to the structure of the fabric (*e.g.*, tear strength and air permeability), and in fact, represent the most particular and distinct way Applicants can describe the claimed fabric. The “measured variables” distinguish the claimed fabric from other fabrics (including at least those disclosed in the Bergen et al. patent), and accordingly, do limit the structure. There is simply no basis to ignore these limitations set forth clearly in the claims.

Bearing in mind that “all limitations are material,” the claims recite numerous limitations that are not disclosed or rendered obvious by the Bergen et al. reference. For example, the following table compares some features of amended claim 1 to the three fabrics disclosed in the Bergen et al. reference:

Features of Claim 1	Bergen Example 1 (Col. 2:25-45)	Bergen Example 2 (Col. 2:45-62)	Bergen Example 3 (Col. 2:64-3:12)
A fabric wherein the tear strength in the warp cut direction and that in the weft cut direction according to the pendulum method are each from 10 to 50 N ,	Tear strength (Warp Cut): 115 N	Tear strength (Warp Cut): 174 N	Tear strength (Warp Cut): 171 N
	Tear Strength (Weft Cut): 110 N	Tear Strength (Weft Cut): 177 N	Tear Strength (Weft Cut): 171 N
the weight per square-meter is 50 g/m² or less ,	215 g/m ²	245 g/m ²	245 g/m ²
the air permeability is 1.5 cm³/cm²·s or less ; and	2.55 l ³ /dm ² ·min	2.45 l ³ /dm ² ·min	3.0 l ³ /dm ² ·min
the yarn linear density is 30 dtex or less .	350 dtex	470 dtex	470 dtex

Thus, the Bergen et al. reference does not disclose a fabric having characteristics even remotely similar to those claimed. The Bergen et al. reference discloses a fabric having a very different tear strength (110-171 N versus the claimed **10-50 N**), weight per square meter (215-245 g/m² versus the claimed **50 g/m² or less**), and yarn linear density (350 – 470 dtex compared to the claimed **30 dtex or less**). In fact, the values disclosed by the Bergen et al. patent are between about **200% to 1500% larger** than those recited in claim 1.

Applicants respectfully submit that claim 1, properly construed to include the limitations that appear plainly in the claim language itself, is not rendered obvious by the Bergen et al. patent.

A Person of Ordinary Skill in the Art Would Not Arrive at the Limitations in Claim 1 by "Routine Experimentation"

The Office action concedes that the Bergen et al. reference does not "specifically disclose the myriad of measured variables recited in claims 1-16," but argues that "[s]ince these measured variables are not shown to have any unexpected results or shown to have any criticality in the disclosure . . . it would have been obvious to one of ordinary skill in the art to determine the optimum ranges." (Office action at pp. 4-5)

Applicants respectfully disagree. The Office action does not provide any reasons why the claimed "variables" may be arrived by "routine experimentation" in light of the Bergen et al. patent. To the contrary, the claims are directed to a fabric entirely different in character and purpose than that of the Bergen et al. patent. Accordingly, "routine optimization" of the fabric of the Bergen et al. patent would not lead one of ordinary skill in the art to the claimed invention. The Office action fails to create a case of *prima facie* obviousness at least because the features of claim 1 do not fall within any range disclosed in the Bergen et al. patent and routine experimentation, in light of the Bergen et al. reference, would not lead one of ordinary skill in the art to the limitations claim 1.

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. MPEP § 2144.05. That is not the case here. The Office action admits that the Bergen et al. patent does not "specifically disclose the myriad of measured variables recited in claims 1-16."

The law regarding "routine experimentation" holds that "[w]here the ***general conditions of a claim are disclosed in the prior art***, it is not inventive to discover the optimum or workable ranges by routine experimentation." MPEP § 2144.05 (*citing In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003) ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine ***where in a disclosed set of percentage ranges*** is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403 (CCPA 1969) (claimed elastomeric polyurethanes which ***fell within the broad scope of the references*** were held to be unpatentable thereover because, among other reasons, there was no

evidence of the criticality of the claimed ranges of molecular weight or molar proportions)). Here, the “general conditions” of claim 1 are not disclosed in the Bergen et al. patent. As discussed above, the fabric disclosed by the Bergen et al. has properties whose numerical values are between about **200% to 1500% larger** than those recited in claim 1.

Aside from the “general conditions” being utterly absent in the cited art, “routine experimentation” would be insufficient because there exists no motivation for one of ordinary skill to so drastically modify the features of the Bergen et al. patent to arrive at the limitations of claim 1. The Bergen et al. patent is directed to an airbag fabric. (*See, e.g.*, Bergen et al. patent, title) To perform as an airbag fabric, a fabric must have certain characteristics that are inconsistent with the limitations of claim 1. For example, an airbag fabric must have a large tear strength (such as 110 N or more (*see* Bergen et al. patent, col. 1:42-46)) to resist the burst from an airbag inflator. The claimed fabric, on the other hand, would surely tear upon inflation. One of ordinary skill in the art seeking to optimize the fabric of the Bergen et al. patent would certainly not arrive at the claimed fabric. Applicants respectfully submit that the only motivation to modify the Bergen et al. air bag fabric into one that is uniquely suitable as an apparel fabric comes from Applicants' own disclosure.

In fact, the Bergen et al. patent recognizes that the object of its invention will not be met unless the fabric has certain characteristics:

The object according to this invention is attained in that the fabric simultaneously has an air permeability of $< 1/\text{dm}^2/\text{min}$ [sic], a residual boiling shrinkage of $< 2\%$, **and a tear propagation strength in warp and weft of $> 110\text{N}$.**

(Bergen et al. patent, col. 1 :42-46)

The Bergen et al. patent thus teaches against tear strengths less than 110 N. One of ordinary skill in the art, seeking to optimize the fabric of the Bergen et al. fabric through “routine experimentation,” would not arrive at the limitations of claim 1, which include a tear strength of between 10 and 50 N (*i.e.*, specifically excluding the range required by the Bergen et al. patent).

Moreover, contrary to the Office action's assertion, the claimed properties are critical. The claimed tear strength is critical for the fabric to be used, *e.g.*, as an outer fabric for a down

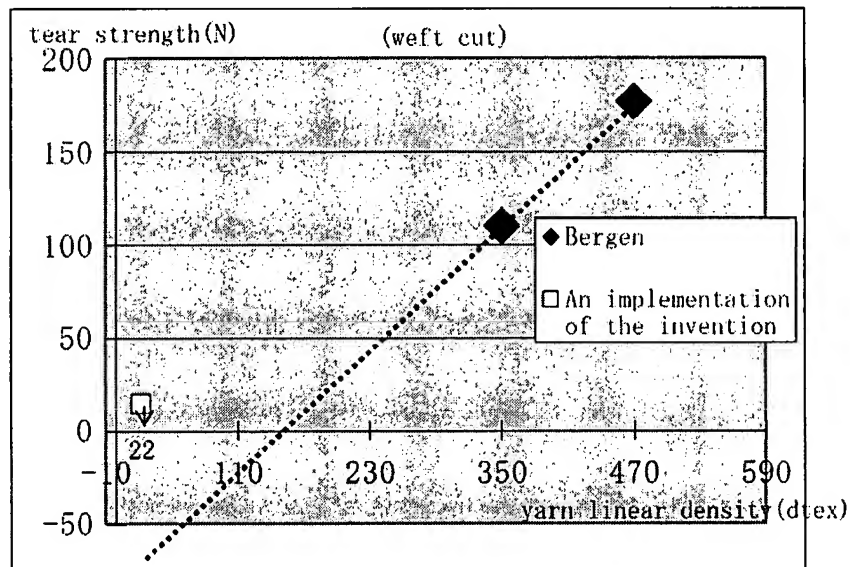
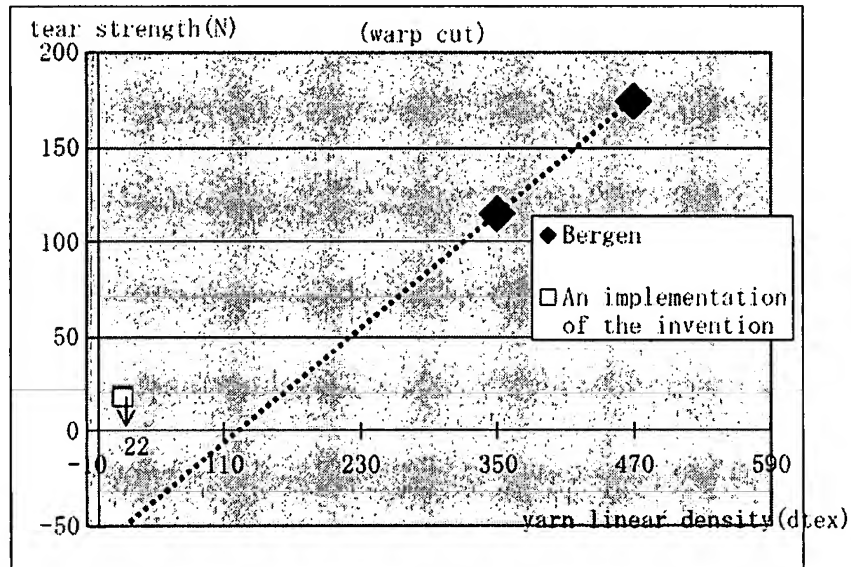
jacket and the like. Making the tear strength greater than 50 N would require increasing the yarn density beyond the claimed 30 dtex. This would result in the fabric becoming thick and hard and hence, uncomfortable for the wearer. (*See* application at page 4, line 24 to page 5, line 6). Moreover, the claimed ranges can be achieved with a thinner yarn, which results in a lighter fabric. The Bergen et al. patent does not appreciate the relationship between tear strength, weight, and bending rigidity.

Accordingly, Applicants respectfully submit that the rejection of claim 1 should be withdrawn.

Secondary Considerations

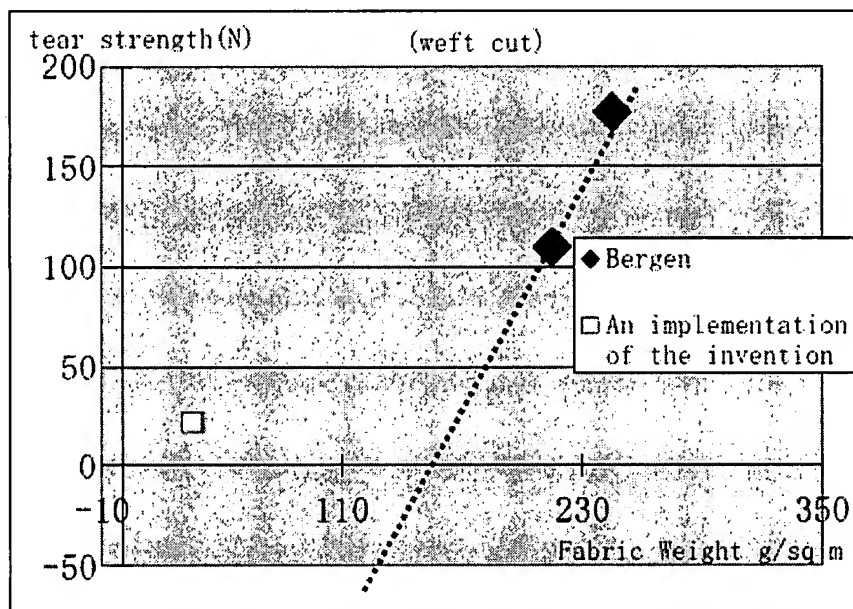
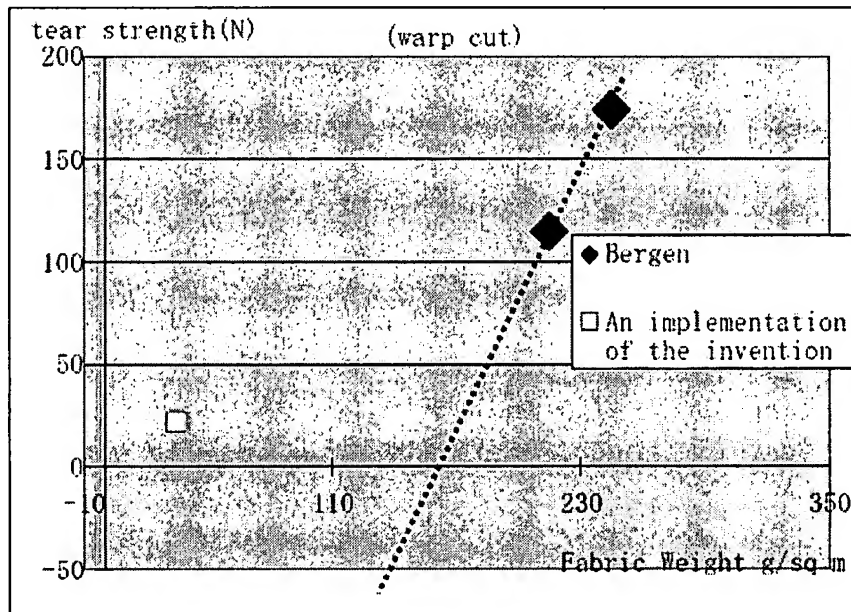
Applicants believe that a discussion of secondary considerations is unnecessary given that the cited art does not disclose or render obvious the claimed subject matter, but offer the following in an effort to advance prosecution.

The claimed characteristics of the fabric are not predictable in light of the cited prior art. For example, the tear strength of the claimed fabric, given its fine yarn linear density, is far stronger than it is expected to be, in light of results described in the Bergen et al. patent. The following graphs illustrate that the fabrics of Bergen et al. patent exhibit a linear relationship between tear strength and yarn linear density (dtex). However, a fabric encompassed by claim 1 is far stronger than would be projected based on the results of the Bergen et al. patent. As shown, it is expected that a fabric consistent with the Bergen et al. patent will have effectively zero tear strength once the yarn linear density is reduced to approximately 110 dtex. In contrast, the instant specification describes at least two fabrics (Example 1 and Example 2, both encompassed by claim 1) that exhibit a tear strength between about 14-18 N at a yarn linear density of 22 dtex:



Moreover, the tear strength of the claimed fabric, given its light weight, is far stronger than it is expected to be, in light of results described in the Bergen et al. patent. The following graphs illustrate that the fabrics of Bergen et al. patent exhibit a linear relationship between tear strength and weight per square meter. However, a fabric encompassed by claim 1 is far stronger than would be projected based on the results of the Bergen et al. patent. As shown, it is expected

that fabric consistent with the Bergen et al. patent will have effectively zero tear strength once the fabric weight is reduced to approximately 160 g/m². In contrast, the instant specification describes at least two fabrics (Example 1 and Example 2, both encompassed by claim 1) that exhibit a tear strength between about 14-18 N at a weight of about 35 g/m²:



Moreover, the claimed characteristics of the fabric are not predictable in light of fabrics tested by named inventor Mr. Yoshihiro Matsui. As described in the attached Declaration Under 37 C.F.R. § 1.132 ("Declaration"), Mr. Matsui engaged an independent laboratory to test four samples of fabric (the "Samples"). (Declaration, ¶ 5) The tear strength of the claimed fabric, given its fine yarn linear density, is far stronger than it is expected to be, in light of the results of Mr. Matsui's testing.

The Samples had the following properties:

<u>Sample</u>	<u>Average Yarn Linear Density in Warp and Weft (dtex)</u>
1	32.0
2	39.3
3	52.0
4	69.0

(Declaration, ¶ 13)

None of the Samples exhibited the claimed combination of fine yarn linear density (*e.g.*, 30 dtex or less) and acceptable tear strength (*e.g.*, from 10 – 50 N). Sample 1, for example, exhibited fine yarn linear density, but its tear strength (4.4 N in warp, 4.6 N in weft) fell far short of the claimed 10 – 50 N. (*See* Declaration, ¶ 13). Sample 4 exhibited tear strength within the claimed range (12.6 N in warp, 10.9 in weft), but its yarn linear density—about 70 dtex—is more than double the claimed "30 dtex or less." (*See id.*) Samples 2 and 3 similarly failed to exhibit the claimed combination of features. (*See id.*)

These distinctions between the Samples and the claimed features are illustrated in the graphs of paragraphs 14-16 of the Declaration. In each graph, a red box illustrates the numerical characteristics of amended claim 1 pertaining to tear strength and yarn linear density. As is clear from each graph, the properties of the Samples fall well outside the red box. (*See* Declaration, ¶¶ 14-16)

Claims 2-8 and 11-20 are Independently Patentable

Claims 2-8 and 11-20 recite additional features and are independently patentable.

For example, Claim 2 requires that “the bending rigidity according to KES is 0.025 gf·cm²/cm or less.” Applicants are unable to identify any disclosure whatsoever in the Bergen et al. patent directed to bending rigidity. However, based on its greater weight and yarn linear density, Applicants submit that the bending rigidity of fabrics of the Bergen et al. patent is far greater than that claimed. A low bending rigidity is a relevant feature of the claimed fabric because, as the specification describes, a low bending rigidity inexplicably increases tear strength measured according to the pendulum method. (Application, p. 11, lines 11-24) This property of the claimed fabric contradicts the common understanding in the art that stiffer fabrics have greater tear strength.

Claims 3 and 4 are directed to the thickness of the claimed fabric. Applicants are unable to identify any disclosure in the Bergen et al. patent directed to thickness. However, based on its greater weight and yarn linear density, Applicants submit that the thickness of fabrics of the Bergen et al. patent is far greater than that claimed.

Claims 5 and 6 recite that the “cover factor is from 1600 to 2000.” In contrast, calculating the cover factors of the fabrics disclosed in the Bergen et al. patent reveal that they are between 2469 and 2471, *i.e.*, outside the claimed range by **over 20%**. The Office action does not provide any reasons why one of ordinary skill in the art would arrive at these values, and therefore fails to create a case of *prima facie* case of obviousness for these claims as well.

Applicants respectfully request that the rejection of all claims under 35 U.S.C. § 103 be withdrawn.

Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or

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other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

Enclosed is a 1050.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 10.25.07



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